

What Is Claimed Is:

1. A device for determining the mass flow (62) via a tank venting valve (20) for an internal combustion engine (90) including an intake manifold (10) and a throttle valve (11), the intake manifold (10) being connected to the tank venting valve (20) and an exhaust gas recirculation system (30), and one measuring transducer (13, 22) each being assigned to the throttle valve (11) and the tank venting valve (20), and a sensor (31) for the mass flow via the exhaust gas recirculation system being assigned to the exhaust gas recirculation system (30),
wherein a mass flow normalizer (40) is assigned to the measuring transducer (13), to the measuring transducer (22), and to the sensor (31) for the mass flow via the exhaust gas recirculation system (30); the mass flow normalizer picks up, sums, and normalizes the signals (15, 24, 32) of the measuring transducers (13, 22) and the sensor (31) assigned to the mass flows via the throttle valve (11), via the tank venting valve (20), and via the exhaust gas recirculation system (30); a convertor (50) is assigned to the mass flow normalizer (40), the convertor calculating a virtual throttle valve angle (51) from which an allocator (60) determines the mass flow (62) via the tank venting valve (20).
2. The device as recited in Claim 1,
wherein the mass flow normalizer (40) normalizes the signals (15, 24, 32) provided by the measuring transducers (13, 22) and the sensor (31), taking the temperature (41), the factor density (42), and the flow-through factor (43) into account.
3. The device as recited in Claim 1 or 2,
wherein the allocator (60) determines the mass flow (62) via the tank venting valve (20) from the virtual throttle valve angle (51), taking at least the engine speed (14), the temperature (41), the factor density (42), and/or the normalized supercritical mass flow (61) via the tank venting valve (20) into account.
4. The device as recited in one of Claims 1 through 3,
wherein an engine controller (70), which controls the engine parameters for the internal combustion engine (90), is situated downstream from the allocator (60).
5. The device as recited in one of Claims 1 through 4,
wherein a measuring transducer (22) is assigned to the pressure differential meter (21)

of the tank venting valve (20), and the outflow characteristic curve (23) of the tank venting valve (20) is assigned to the measuring transducer (22).

6. The device as recited in Claims 1 through 5,
wherein the measuring transducer (13) and/or the measuring transducer (22) and/or the sensor (31) and/or the mass flow normalizer (40) and/or the convertor (50) and/or the allocator (60) are integral components of the engine controller (70) or are combined in at least one additional subsystem.
7. A method for determining the mass flow (62) via a tank venting valve (20) for an internal combustion engine (90) including an intake manifold (10) and a throttle valve (11) situated therein,
wherein the mass flows via the throttle valve (11), via the tank venting valve (20), and via the exhaust gas recirculation system (30) are summed and normalized, by including normalization factors, in a mass flow normalizer (40) for forming a normalized mass flow (44); a virtual throttle valve angle (51) is determined from the normalized mass flow (44); and the mass flow (62) via the tank venting valve (20) is determined from the virtual throttle valve angle (51).
8. The method as recited in Claim 7,
wherein the normalized mass flow (44) is normalized, including at least one flow-through factor (43), one temperature factor (41), and one factor density (42).
9. The method as recited in Claim 7 or 8,
wherein the assignment between the normalized mass flow (44) and the throttle valve angle (12) is predefined via a characteristic curve, and the virtual throttle valve angle (51) is calculated from the value of the normalized mass flow (44).
10. The method as recited in one of Claims 7 through 9,
wherein the mass flow (62) via the tank venting valve (20) is determined the virtual throttle valve angle (51), including the engine speed (14) and/or taking into account the normalized supercritical mass flow (61) via the tank venting valve (20) and/or a factor density (42) and/or a temperature factor (41) (allocator (60)).

11. The method as recited in one of Claims 7 through 10,
wherein the virtual throttle valve angle (51) is calculated which corresponds to the
throttle valve angle (12) which would be necessary to supply the sum of the mass
flows (62) flowing into the intake manifold (10) via the throttle valve (11) alone.